# Head-Up Synthetic Vision Display System

*For The Joint University Program*
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**Project Sponsor: *NASA/FAA* Joint University Program**

# Introduction

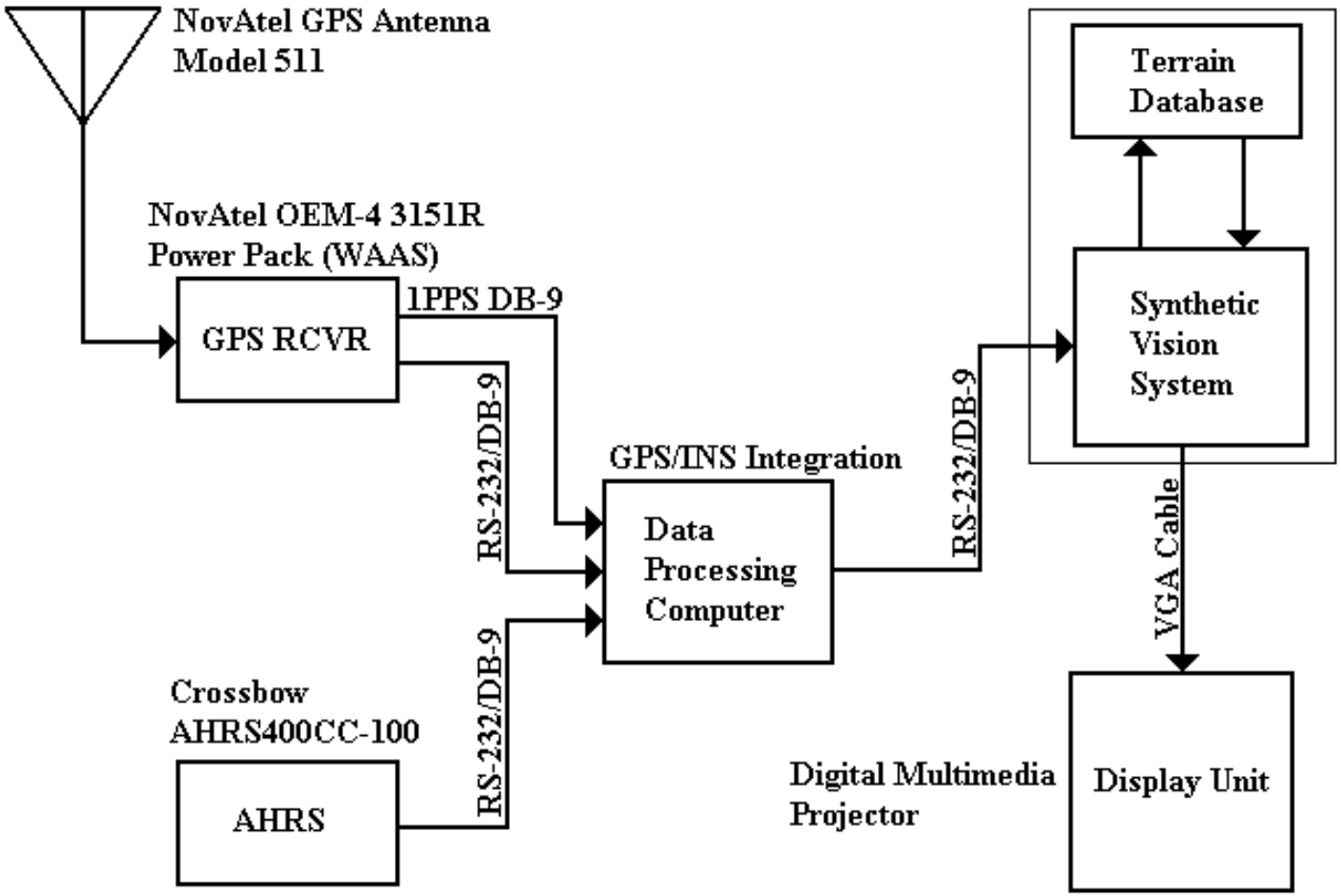
- General Aviation instrumentation has undergone little change in the past 50 years.
- VMC into IMC flight continues to be one of the two major areas producing the largest number of GA fatalities.
- Anticipated increase of 2.5% per year in IFR traffic over the next decade.

# Outline

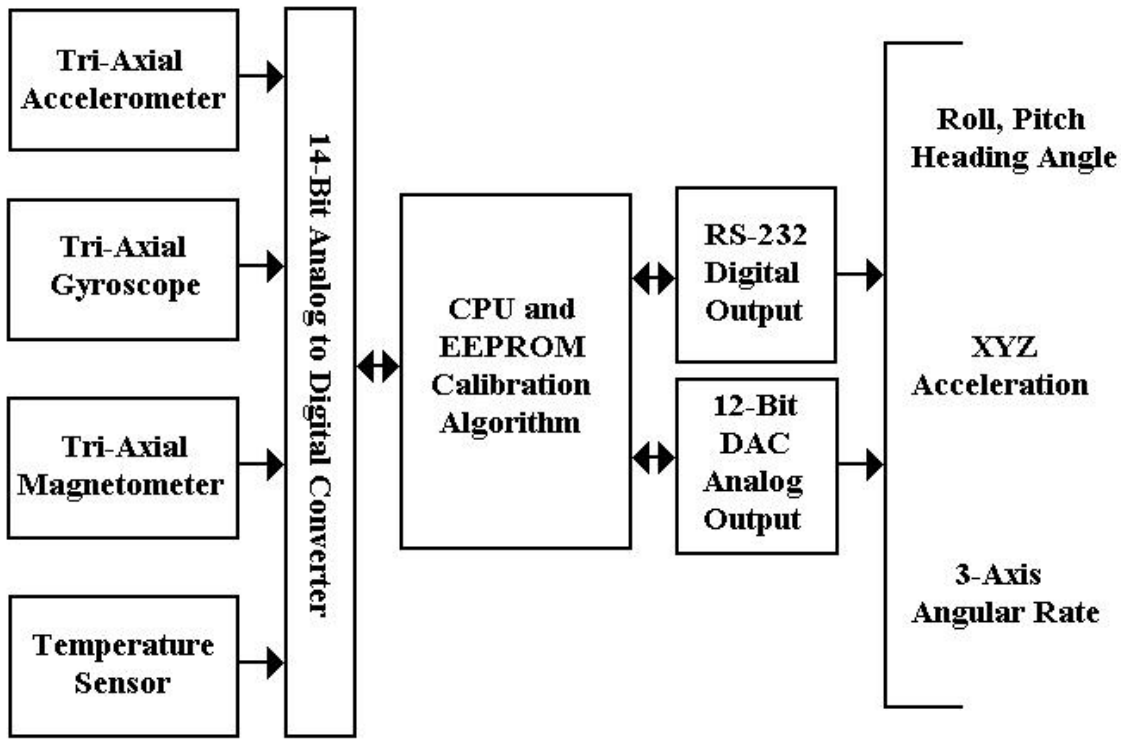
- Motivation Behind Head-Up Synthetic Vision Display (HUSVD)
- HUSVD Architecture
- Flight Testing
- Lessons Learned
- Future Work - Multiple Configuration HUSVD

# VMC Versus IMC

# HUSVD System Architecture

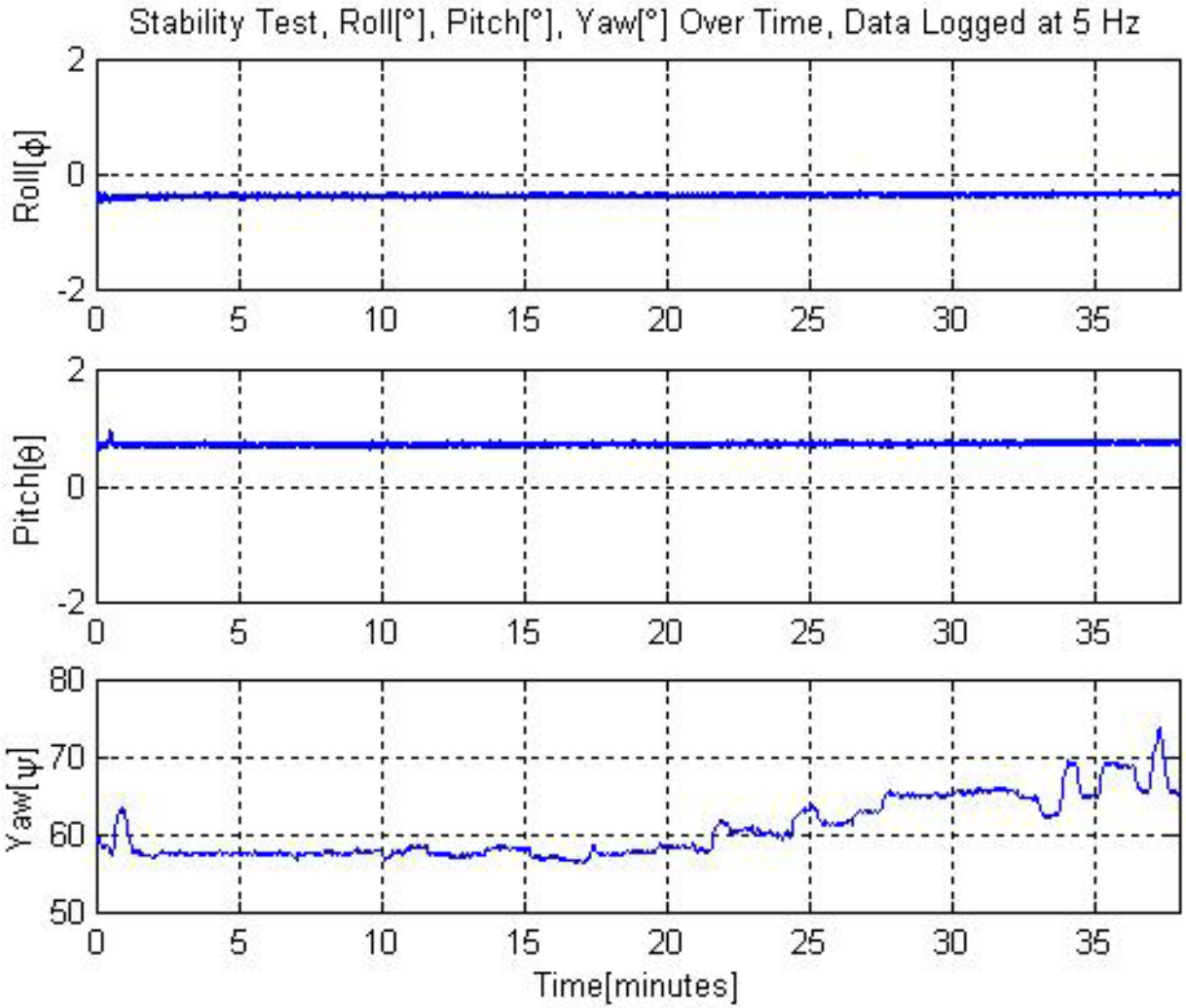


# Crossbow AHRS400CC-100


http://www.xbow.com

# AHRS Static Evaluation



# Flight Test Aircraft

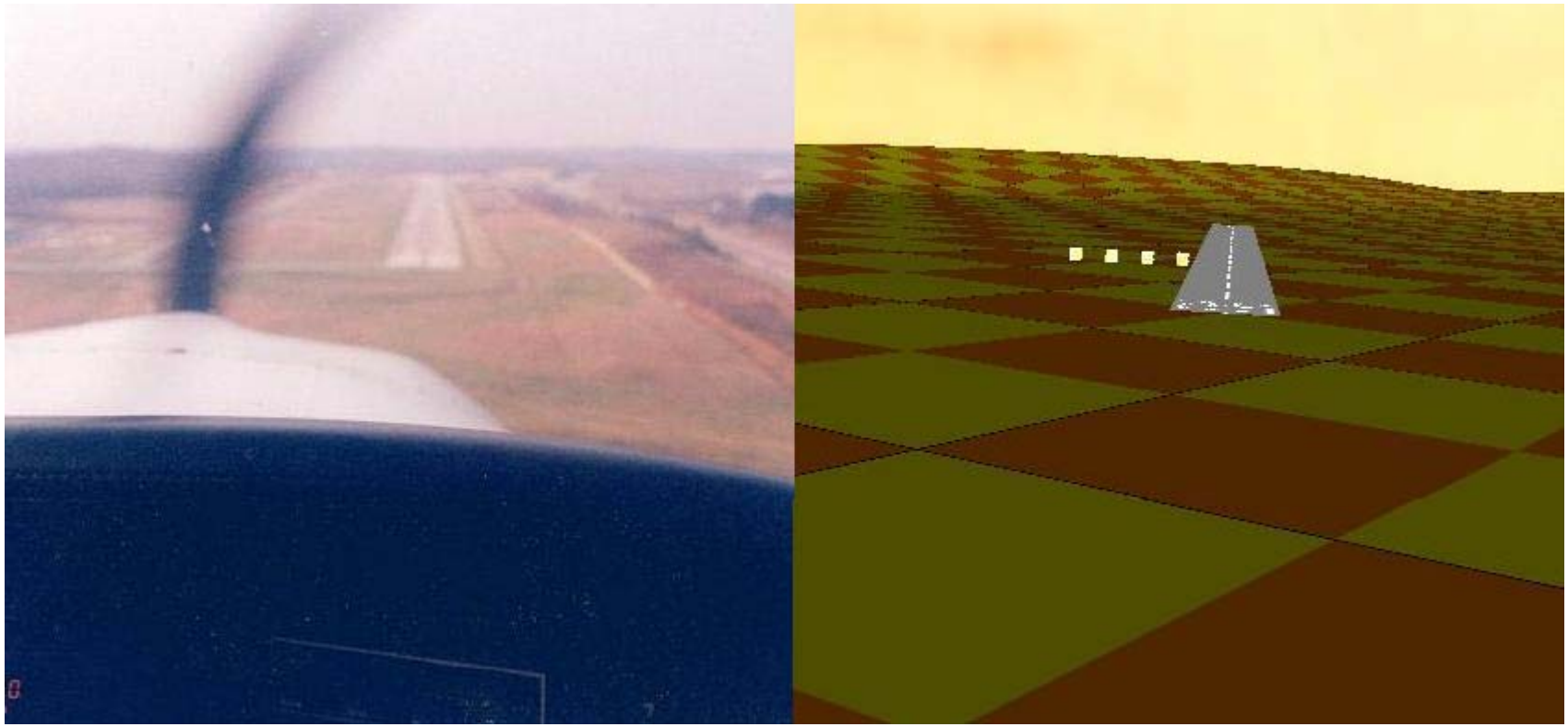
# Combiner: Lexan 9034

# LCD Projector Mounting

# Equipment Installation

# System Installation Video

# Synthetic Vision Comparison



Two separate test flights on UNI Runway 25. There is a slight altitude difference between the two approaches. Synthetic perspective is very compelling.

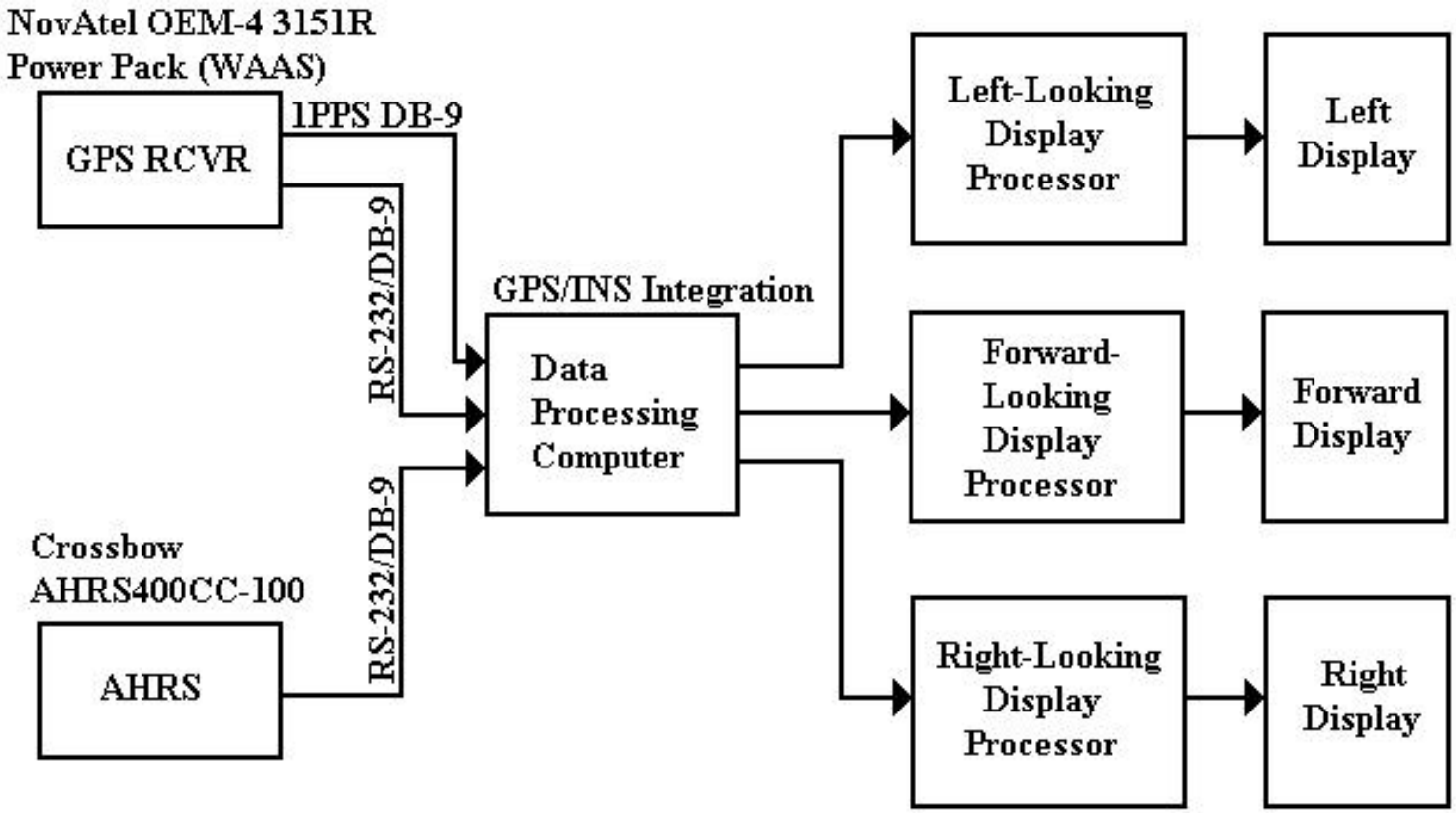
# Simulated Approach Video

# Approach 25

# Lessons Learned

- Discrepancy in Size or Object Placement is an Immediate Distraction
- Synthetic Vision Head-Up and Head-Down Display Perspectives are Very Different
- Dynamic “Tuning” of HUSVD is Needed
- Object Size Needs to be Increased
- Excess Light in Cockpit

# Multiple View Display System



# References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# Questions